

[0054] Although the multi view image B3 is displayed on the left side, it should be understood that exemplary embodiments of the present invention are not limited thereto. For example, the multi view image B3 can be displayed in the center portion of the display unit 130. In some cases, the multi view image B3 can also be displayed in the right side or upper or lower margin area of the display unit 130, so that the user can easily perform a touch action on the display unit 130. The controller 160 can partially initialize touch sensors 140 with respect to an area where the multi view image B3 is displayed, instead of initializing all the touch sensors 140. The area where the multi view image B3 is displayed can be implemented to support a variety of functions according to the touch events detected by the touch sensor 140, such as, for example, a flick, a drag, and double touches. If other content, for example, an audio file, is selected in the multi view image B3, the controller 160 may terminate the output of a current content and may start to output the selected audio file back.

[0055] FIG. 7A, FIG. 7B, FIG. 7C, FIG. 8A, FIG. 8B, FIG. 9, FIG. 10A, FIG. 10B, FIG. 10C, and FIG. 10D are diagrams of a flexible display device 100 for supporting various data displays associated with operating a flexible display device that supports a page turning function, according to exemplary embodiments of the present invention.

[0056] Referring to FIG. 7A, in state 71a, the display unit 130 of the flexible display device 100 is not bent with respect to a central axis of the display unit 130. In state 73a, the display unit 130 is bent and a touch event may be detected at both sides A and B. A content stored in the storage unit 170 may be output on the display unit 130 according to the detected touch event and a user's request. The content can be output according to a touch event that is detected at one or both sides of the display unit 130. If a touch event is detected, the flexible display device 100 may activate a flexible sensor 150. In some cases, the flexible display device 100 can also activate the flexible sensor 150 when activating the touch sensor 140.

[0057] Referring to FIG. 7B, in state 71b, the right side of the display unit 130 is bent more than the left side of the display unit 130 with respect to the center axis of the display unit 130. In state 73b, the display unit 130 is bent asymmetrically, and the flexible display device 100 may perform a control operation where contents may be displayed on the side that is more bent than the side that is less bent. For example, the flexible display device 100 may receive a bend signal from flexible sensors 150 as the display unit 130 is bent. The flexible display device 100 may compare information regarding a bend angle associated with the bend event at the right side of the display unit 130, for example, with information regarding a bend angle associated with the bend event at the left side of the display unit 130. The flexible display device 100 may determine that the bend angle of the right side is greater than that of the left side. The flexible display device 100 can then display contents on the right side with a certain interval between the contents.

[0058] Referring to FIG. 7C, as shown in state 71c, the flexible display device 100 can determine a width of the display unit 130 on which contents can be displayed, according to a touch event B and a bend angle transmitted from the right side. For example, as shown in FIG. 7B, the smaller the bend angle of the right side in a state 71b, the smaller the display width displayed in the flexible display device 100 in a state 73b. As shown in FIG. 7C, the larger the bend angle of

the right side in a state 71c, the larger the display width in the flexible display device 100 in a state 73c.

[0059] As shown in states 75c and 77c, output of the contents can be controlled according to touch events. For example, a touch event B generated at the right side can be moved to a right margin along the right side of the display unit 130 according to a user's control, so that the touch event B is moved to the right margin having a certain width within which other contents may be displayed. In response to detecting the touch event B, the display of the other contents in the right margin may be changed. For example, the other contents within the right margin may be browsed or viewed individually, or pages of a book may be turned from right to left.

[0060] FIG. 7A, FIG. 7B, and FIG. 7C can be explained using the example of a book. A book may be composed of a plurality of pages corresponding to multiple leaves. Each leaf can display a page. A user can hold both the left side and the right side of the book using the user's hands. If the user intends to turn over a leaf, the user can hold the right side of the book (i.e., allowing for the selection of the pages or leaves, using the right hand). The user can hold a side of the book in such a way that the thumb of the right hand may be located on the right side of the book and the remaining four fingers are located on the rear right side of the book. Accordingly, if the user applies a downward force on the book, the right side of the book may be bent so that the text in the book may be tilted at a certain angle. A thumb pressing a particular leaf or page may correspond to a touch event being detected along a margin of the display unit 130. The larger the bend, the larger a block width of the book, as shown in states 73b of FIG. 7B and 73c in FIG. 7C. A block width may correspond to a region on the display unit 130 on which the page margins, or portions of a page, of a book overlap, as shown in FIG. 7A, FIG. 7B, and FIG. 7C.

[0061] As shown in FIG. 7C, if the thumb pressing the leaves is moved towards the right margin, the leaves may be tuned from right to left.

[0062] As described above, the flexible display device 100 can browse through a plurality of pages corresponding to the paper leaves of a book. A flexible display device 100 may continue to detect touch events and to display a portion of other pages within a certain width according to the bend angle. If the user's touch is moved to the right margin, pages released by the touch event may be turned from right to left, and a corresponding page may be output. A page on which a touch event has been detected can continue to be displayed on the display unit 130. If the touch event moves and releases the page being displayed, the released page may be replaced with another page that retains the touch event.

[0063] Although pages are turned over as a touch event moves in the block width of the pages, it should be understood that exemplary embodiments of the present invention are not limited thereto. For example, pages can be turned according to a change in the bend event while the touch event is fixed. The width of the block width may be determined according to the bend angle of the bend event. If, for example, the width of the block width is increased as the bend angle is increased, the width of the block width may become larger and pages may be turned until the page on which the touch event B is detected is displayed. Therefore, the flexible display device 100 may turn pages according to the detection and release of the touch event B, thereby replacing a page with another page retaining the touch event B.